1213.43573X00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Naoki WATANABE

Serial No.:   10/791,734

Filed: March 4, 2004

For: DATA MIGRATION METHOD

RENEWED REQUEST FOR RECONSIDERATION OF PETITION TO MAKE SPECIAL UNDER 37 CFR 1.102(d) and MPEP. §708.02, VIII

MS Petition
Commissioner for Patents   June 28, 2005
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

1. Petition

Applicants hereby renews its Petition to make this application **Special** previously submitted on March 24, 2005, in accordance with 37 CFR §1.102(d) and MPEP 708.02, VIII. The March 24, 2005 Petition was denied by a Decision issued on May 4, 2005 in which the Petitions Examiner stated that the March 24, 2005 Petition failed to recite distinct features of the claimed subject matter. The present Request for Reconsideration of Petition incorporates by reference the March 24, 2005 Petition and provides additional details regarding the claims and how the claimed subject matter is patentable over the references. The present invention is a new application filed in the United States Patent and Trademark Office on March 4, 2004 and as such has not received any examination by the Examiner.

2. Claims

Applicants hereby represent that all the claims in the present application are directed to a single invention. If upon examination it is determined that all the claims presented are not directed to a single invention, Applicants will make an election without traverse as a prerequisite to the granting of special status in conformity with established telephone restriction practice.

3. Search

Applicants hereby submit that a pre-examination search has been made by a professional searcher.

The field of search covered:

Class	Subclasses
707/	1
710	5
711	112, 161, 162

The above subclasses represent areas deemed to contain subject matter of interest to one or more of the search features. Please note that relevant references may be classified outside of these areas. The integrity of the search is based on the records as presented to us by the United States Patent and Trademark Office (USPTO). No further integrity studies were performed.

4. Copy of References

A listing of all references found by the professional searcher is provided by a Form PTO-1449 and copies of the references and the Form PTO-1449 were submitted as part of an Information Disclosure Statement (IDS) filed on March 24, 2005.

5. Detailed Discussion of the References and Distinctions Between the References and the Claims

Below is a discussion of the references uncovered by the search and cited in the IDS filed on March 24, 2005 that appear to be most closely related to the subject matter encompassed by the claims of the present application, and which discussion particularly points out how Applicants' claimed subject matter is distinguishable over those references. All other references uncovered by the search and cited in the IDS filed on March 24, 2005 are **not** treated in detail herein.

a.   Detailed Discussion of the References

Ofek et al. '640 (U.S. Patent No. 5,680,640), shows a system for migrating data from an old storage system to a new storage system by connecting the new storage system to the old storage system and to a host computer, disconnecting the old storage system from the host computer, initializing a data element map or table to a predetermined state indicating data elements stored in the old storage system and the new storage system, and upon receipt of a request (read or write), determining based on the data element map or table whether the requested data is stored in the old or new storage system. (see Figs. 1-3, col. 2, lines 13-31, col. 4, lines 13-33, col. 5,

lines 1-8 and 35-55).

Parks, et al. (U.S. Patent No. 6,598,174), shows a method and apparatus for storage unit replacement in a non-redundant array. It further shows that when data is moved to a new storage array, read and write requests for those portions of the data will be directed to the new storage array while requests for other data portions will be directed to the old storage array. (see col. 3, lines 29-47, col. 8, lines 23-40).

Fujibayashi et al (U.S. Patent No. 6,640,291) shows an apparatus and method for online data migration with remote copy, having a host computer, an old storage system, a new storage system and a connection. It further shows migration of data and the remote copy configuration information from an old primary storage system to a new primary storage system, processing read and write requests from the host computer via a connection at the new primary storage system while conducting the migration, and disconnecting the old primary storage system from the host computer. (see Figs. 1, 2 and 4, col. 1, lines 51-67 and col. 3, lines 22 and col. 5, line 4)

Obara (U.S. Patent Application Publication No. 2004/0158652) shows a data migration method, protocol converter and switching apparatus. If further shows an online data migration facility which copies data from an old storage system into a new storage system, while continuing the read/write of data from a computer to the old storage system. (see Fig. 1 and paragraphs [0016]-[0030] – [0032], and [0064]-[0067].

b.   Distinctions Between the References and the Claims

1. Claimed Invention

The present invention as recited in the claims is not taught or suggested by any of the above noted references whether taken individually or in combination with each other or in combination with any of the other references now of record.

The present invention as recited in the claims is directed to a method and system of migrating data from an old storage system to a new storage system in a data processing system including a plurality of host computers and a plurality of said storage systems. According to the present invention, the method of migrating data includes a route changing phase which is implemented before migration of the data from the old storage system to the new storage system, wherein in the route changing phase each host computer can access both the old storage system and the new storage system such that the new storage, in response to a read request from a host computer, reads data from the old storage system and sends the read data to the host computer, and in response to a write request from the host computer, writes data into the old storage system. Further, according to the present invention, a data migration phase is conducted after the route changing phase such that a route is set in a manner to prohibit access from the host computer to the old storage system and permit access from the host computer to the new storage system.

2. Distinct Features

It is submitted that the cited references, whether taken individually or in combination with each other, fail to teach or suggest the invention as claimed. In particular, the cited references, at a minimum, fail to teach or suggest in combination with the other limitations recited in the claims:

a first feature of the present invention as recited in independent claims 1 and 13 wherein there is provided a route changing phase before migration of the data from the old storage subsystem to the new storage subsystem and in the route changing phase, each host computer can access both the old and new storage subsystems; and

a second feature of the present invention as recited in independent claim 13 wherein in the route changing phase, the host computers are route changed host computers accessing the new storage subsystem and route changed host computers accessing the old storage subsystem.

To the extent applicable to the present Petition, Applicants submit that although the distinguishing feature(s) may represent a substantial portion of the claimed invention, the claimed invention including said feature(s) and their inter-operation provides a novel storage system and system and method related to or implemented in or by said storage system not taught or suggested by any of the references of record.

3. Distinctions Between Features and References

The distinctions between the claimed features and the references considered most closely related to the claimed invention are discussed below:

At least one of the above described features of the present invention as recited in each of the independent claims are not taught or suggested by any of the above described references or any of the other references of record whether taken individually or in combination with each other.

Ofek '640 as described above, teaches a system for migrating data from an old storage system to a new storage system by connecting the new storage system to the old storage system and to the host computer, disconnecting the old storage system from the host computer, initializing a data element map or table in the new storage system so as to indicate the data elements stored on the old storage system and the new storage system, and determining, based on the data element map or table, whether the requested data is stored in the old storage system or the new storage system. However, in Ofek '640 there is no teaching or suggestion of a route changing phase which is implemented before migration of the data from the old storage system to the new storage system, wherein in the route changing phase each host computer can access both the old storage system and the new storage system such that the new storage, in response to a read request from a host computer, reads data from the old storage system and sends the read data to the host computer, and in response to a write request from the host computer, writes data into the old storage system as in the present invention as recited in the claims. Ofek '640 requires that the old storage system be connected to the new storage and then disconnected from the host computer.

More particularly, Ofek '640 does not teach or suggest the above described first feature of the present invention as recited in independent

claims 1 and 13, and the above described second feature of the present invention as recited in independent claim 13 in combination with the other limitations recited in each of the independent claims.

Parks, as described above teaches the replacement of a storage unit in a non-redundant array. In Parks, when data is moved to a new storage array, read and write requests for those portions of the data are directed to the new storage array while requests for other data portions are directed to the old storage array. Thus, there is no teaching or suggestion in Parks, of a route changing phase which is implemented before migration of the data from the old storage system to the new storage system, wherein in the route changing phase each host computer can access both the old storage system and the new storage system such that the new storage, in response to a read request from a host computer, reads data from the old storage system and sends the read data to the host computer, and in response to a write request from the host computer, writes data into the old storage system as in the present invention as recited in the claims.

More particularly, Parks does not teach or suggest the above described first feature of the present invention as recited in independent claims 1 and 13, and the above described second feature of the present invention as recited in independent claim 13, in combination with the other limitations recited in each of the independent claims.

Fujibayashi as described above teaches migration of data and remote copy configuration information from an old primary storage system to a new primary storage system, processing read and write requests from the host

computer via a connection at the new primary storage system while conducting the migration, and disconnecting the old primary storage system from the host computer. However, there is no teaching or suggestion in Fujibayashi of a route changing phase which is implemented before migration of the data from the old storage system to the new storage system, wherein in the route changing phase each host computer can access both the old storage system and the new storage system such that the new storage, in response to a read request from a host computer, reads data from the old storage system and sends the read data to the host computer, and in response to a write request from the host computer, writes data into the old storage system as in the present invention as recited in the claims.

More particularly, Fujibayashi does not teach or suggest the above described first feature of the present invention as recited in independent claims 1 and 13, and the above described second feature of the present invention as recited in independent claim 13 in combination with the other limitations recited in each of the independent claims.

Obara as described above teaches an online data migration facility which copies data from an old storage system into a new storage system, while continuing the read/write of data from a computer to the old storage system. However, there is no teaching or suggestion in Obara of a route changing phase which is implemented before migration of the data from the old storage system to the new storage system, wherein in the route changing phase each host computer can access both the old storage system and the new storage system such that the new storage, in response to a read request

-9-

from a host computer, reads data from the old storage system and sends the read data to the host computer, and in response to a write request from the host computer, writes data into the old storage system as in the present invention as recited in the claims.

More particularly, Obara does not teach or suggest the above described first feature of the present invention as recited in independent claims 1 and 13, and the above described second feature of the present invention as recited in independent claim 13, in combination with the other limitations recited in each of the independent claims.

Therefore, since the cited references fail to teach or the above described first feature of the present invention as recited in independent claims 1 and 13, and the above described second feature of the present invention as recited in independent claim 13 in combination with the other limitations recited in each of the independent claims, it is submitted that all of the claims are patentable over the cited references whether said references are taken individually or in combination with each other.

Therefore, based on the above, Applicants submit that the present invention as recited in the claims is allowable over the above described references and the other references of record whether taken individually or in combination with each other.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C., Deposit Account No. 50-1417 (1213.43573X00).

Respectfully submitted,

MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.

Carl I. Brundidge
Registration No. 29,621

CIB/jdc
Enclosures
(703) 684-1120